

ABSTRACT OF THE DISCLOSURE

Nickel base superalloy consisting essentially of, in weight %, about 3% to about 12% Cr, up to about 15% Co, up to about 3% Mo, about 3% to about 10% W, up to about 6% Re, about 5% to about 7% Al, up to about 2% Ti, up to about 1% Fe, up to about 2% Nb, about 3% to about 12% Ta, up to about 0.07% C, about 0.030% to about 0.80% Hf, up to about 0.10% Zr, up to about 0.02% B, up to about 0.050% of an element selected from the group consisting of Y and Lanthanide series elements, and balance Ni and incidental impurities with a S concentration preferably of 2 ppm by weight or less. The nickel base superalloy pursuant to the invention possesses improved high temperature oxidation resistance. The nickel base superalloy as a substrate can be coated with an outwardly grown diffusion aluminide bondcoat followed by deposition of a ceramic thermal barrier coating (TBC) on the bondcoat. Spallation of the TBC is significantly prolonged when the bondcoat comprises an outwardly grown, single phase diffusion aluminide bondcoat on the substrate.